

Y-12 weapons work expands in 1950s

During the era immediately following the end of World War II, as early as 1946, evidence of the Cold War was emerging. Russia was working on its own nuclear weapon, the United States was trying to control the spread of nuclear weapons, but at the same time releasing much of the technology trying to promote peaceful uses of atomic energy.

During the late 1940s and early 1950s, the Graphite Reactor at Oak Ridge National Laboratory was used to create medical isotopes in conjunction with the four remaining pilot calutrons at Y-12 located in Building 9731. Building 9204-3 was transitioning from separation of uranium to other basic science experiments. It was not used to separate stable isotopes until later when production quantities were needed.

Building 9211 was being used during 1950 to separate hafnium from zirconium to make pure zirconium to clad naval reactors fuel. The rest of the Biology Complex was beginning to perform basic radiation exposure research using mice.

The Comparative Animal Research Laboratory was being operated by the University of Tennessee at location where the Scarborough community had existed before the Manhattan Project. This unique facility was home to the animals that had been exposed to radiation by the Trinity test on July 16, 1945.

The K-25 Gaseous Diffusion Plant was expanding with K-27 being added in January 1946, K-29 in 1951, K-31 in 1951 and K-33 in 1954. See how the uranium enrichment mission was expanding to support the Cold War? This expansion of mission was also apparent at the Y-12 Plant where uranium metal was being machined for nuclear weapons tests as the weapons laboratories worked on various modifications of the original designs.

Meanwhile, it might be helpful to look at the number of nuclear tests that were being conducted to gauge the increase in work at Y-12. There was Trinity (the "Gadget" with plutonium supplied by Hanford) in 1945, and of course the actual weapons used in warfare, Little Boy (Y-12 supplied the uranium 235) and Fat Man (Hanford supplied the plutonium). Then in 1946 there were two tests, Able and Baker which were used in Operations Crossroads.

These tests were conducted at the Bikini Atoll in the Marshall Islands. They were the first tests that were announced ahead of time and a large contingent of press and invited guests were on hand to view the actual explosions...also a first. A third test, Charlie, was cancelled.

On Wednesday, November 12, 1946, the newly formed Atomic Energy Commission visited Oak Ridge and was told while meeting in the Castle on the Hill overlooking the city of Oak Ridge that K-25 and K-27 could replace Y-12. This was a key change in direction for Y-12 that resulted in the move toward machining uranium.

Jack Case and others were sent to Los Alamos to bring back the uranium machining technology. A decision had been made in December, 1946, to shut down all calutrons at Y-12 except those in Buildings 9731 and 9204-3, Y-12 was in the midst of major transition and changes were coming fast and furious.

In 1948 there were three nuclear tests, X-ray, Yoke and Zebra. Then in 1951 there were 16 tests. In 1952 there were 10 tests. In 1953 there were 11 tests. In 1954 there were six tests. In 1955 there were 20 tests. See what I mean? Y-12 made components for every single one of the nuclear tests after the first few which were fabricated and assembled at Los Alamos.

The RDS-1 (Russian: РДС-1), also called the Joe-1, was the first nuclear weapon test of the Soviet Union. It was named "Joe" in reference to Joseph Stalin. The bomb was tested on August 29, 1949 at Semipalatinsk, Kazakhstan. This resulted in major increases in the United States efforts to produce a stockpile of nuclear weapons.

Y-12 began producing uranium parts in early 1948. Building 9212 was being used to create the machine shops and inspection areas needed to support this expanded machining mission. Soon major expansion would be required to keep pace with the ever growing workload.

In 1949 the Oak Ridge Institute for Nuclear Studies convinced the Atomic Energy Commission to open the American Museum of Atomic Energy. This was an indicator of the desire to explain and educate the public regarding nuclear energy.

By 1953, when the Soviet Union exploded its second nuclear weapon on August 12, 1953 and kick started Y-12's lithium separation effort into high gear, the Cold War was being waged on a number of fronts. One was the attempt to keep the nuclear weapons from being obtained by other countries than the US and the Soviets and another was to try and manage this new form of energy for peaceful purposes.

This last area is where President Eisenhower's "Atoms for Peace" speech on December 8, 1953 had its focus. It was presented to the General Assembly of the United Nations.